

What is claimed is:

1. A charge pump supplied by a DC supply, comprising
5 one or more accumulation capacitors that are charged during a charging cycle, and
switching elements for connecting the one or more accumulation capacitors in parallel during the charging cycle and in series during a discharge cycle, wherein at least one of the switching elements is a LVTSCR
10 operating in snapback mode.
2. A charge pump of claim 1, wherein the switching elements are controlled by a clock circuit.
3. A charge pump of claim 2, wherein the charge pump is a dual stage structure wherein the switching elements comprise two LVTSCRs
15 operating in snapback mode during the charging cycle and a commutator connecting the accumulation capacitors in series during the discharge cycle.
4. A charge pump of claim 3, wherein the commutator is a PMOS transistor or a LVTSCR.
- 20 5. A charge pump having a pulse input signal, comprising
one or more accumulation capacitors that are charged during a charging cycle, and
switching elements for connecting the one or more accumulation capacitors in parallel during the charging cycle and in series during a
25 discharge cycle, wherein at least one of the switching elements is a LVTSCR operating in snapback mode.
6. A charge pump of claim 5, wherein the switching elements are controlled by a clock circuit.

7. A charge pump of claim 5, wherein the switching elements make use of the changing voltage levels of the pulse input signal to turn the at least one LVTSCR on and off.
8. A DC-DC converter having a pulse input signal, comprising
5 one or more accumulation capacitors that are charged during a charging cycle,
an output capacitor, and
switching elements for connecting the one or more accumulation capacitors in parallel during the charging cycle and in series during a
10 discharge cycle, wherein at least one of the switching elements is a LVTSCR operating in snapback mode.
9. A DC-DC converter of claim 8, wherein the switching elements are controlled by a clock circuit.
10. A DC-DC converter of claim 8, wherein the switching elements make use
15 of the changing voltage levels of the pulse input signal to turn the at least one LVTSCR on and off.
11. A DC-DC converter of claim 9, wherein the switching elements comprise two LVTSCRs, and wherein the charge pump includes one accumulation capacitor, and a commutator separating the accumulation capacitor and
20 output capacitor.

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